

## REMARKS

Claims 1-30 are pending in the present application. Claim 1 is amended herein for clarity and to more particularly define the invention. Claims 22-30 are canceled herein without prejudice or disclaimer. New claim 45 is added herein. Support for the amendment and new claim is found throughout the specification, as set forth below. Thus, it is believed that no new matter is added by the amendment and new claim and their entry and consideration is respectfully requested. In light of the amendment and new claim and the following remarks, applicants respectfully request reconsideration of this application and allowance of the pending claims to issue.

### I. Claim Rejections under 35 U.S.C. § 103.

A. Claims 1-19 and 21 are rejected under 35 U.S.C §103(a) as allegedly unpatentable over Japanese Patent Publication 06016568 (abstract, Chiba Seifun KK; filed October 4, 1992; hereinafter "JP06016568") in view of Wu et al. (*J. Agric. Food Chem.* 49: 501-506 (2001)) in view of Garrison et al. (U.S. Patent Application No. 4,175,075), Eto et al. (*J. Jpn. Soc. Nutr. Food Sci.* 51:355-359 (1998).

As an initial point, applicants note the Examiner's objection to the length of the previous response. This response (submitted on February 25, 2008; hereinafter "the February 25, 2008 response") was a total of 15 pages in length including a cover page, four pages of claims, one page addressing formalities and a single indefiniteness rejection and 8 pages addressing three obviousness rejections (citing a total of four references) and finally a conclusion page. This does not seem particularly excessive in length.

We note, however, that it has been very difficult to determine how the secondary references are being applied. As a result, it has been necessary to address issues that may not seem directly relevant. For instance, the Garrison et al. reference appears to be cited for methods of defatting. However, none of the claims of the present invention recite a defatting step. This is discussed in the February 25, 2008 response. Additionally, Eto et al. was originally cited for its disclosure of a particular peptide, Phe-Leu. The recitation to this peptide in claim 20 of the

present invention was removed in a response submitted on July 10, 2007; however, Eto et al. continues to be included in the rejection. Thus, if the Examiner, after reviewing the present response, should decide to maintain the rejections, it would be greatly appreciated if the rejections could be clarified, pointing out with particularity how the secondary references are being applied. This would clarify the record for appeal and assist applicants in bringing to focus in fewer pages how the present invention would not have been obvious to one of ordinary skill in the art in view of the suggested combinations.

The present invention teaches a process for preparing an angiotensin converting enzyme (ACE) inhibitory peptide-containing hydrolysate comprising: a) contacting a substantially oil-free seed meal or a flour with an organic solvent; b) separating the meal or flour of step (a) from the solvent; and c) treating the separated meal or flour of step (b) with at least one proteolytic enzyme to produce an ACE inhibitory peptide-containing hydrolysate. As noted in the Muir Declaration and the previous response, both submitted on February 25, 2008, the presently claimed method provides a more potent ACE inhibitory peptide-containing hydrolysate with surprisingly enhanced activity over that produced by prior art methods (*See*, pages 4-5 of the Muir Declaration and page 9 of the February 25, 2008 response).

None of the references cited in the Office Action teach contacting a substantially oil-free seed meal or a flour with an organic solvent; and then b) separating the meal or flour of step (a) from the solvent prior to treating the separated meal or flour of step (b) with at least one proteolytic enzyme to produce an ACE inhibitory peptide-containing hydrolysate as claimed in the present invention. The primary reference cited in the Office Action dated April 3, 2008, JP06016568, teaches dissolving wheat gluten containing 70% moisture in acetic acid, adding hydrochloric acid to reduce the pH of the gluten-acetic acid solution and then treating the gluten-acetic acid-hydrochloric acid solution with pepsin to produce ACE inhibitory peptides. The secondary reference, Wu et al., teaches treating defatted soy meal with Alcalase to produce ACE inhibitory peptides. The other secondary reference, Garrison et al., teaches a complex purification protocol for producing protein granules.

Accordingly, alone or in combination, none of the cited references teach or suggest the steps of contacting a substantially oil-free seed meal or a flour with an organic solvent and then separating the meal or flour from the solvent; prior to treating the separated meal or flour with at least one proteolytic enzyme to produce an ACE inhibitory peptide-containing hydrolysate. Accordingly, Applicants respectfully submit that the present rejection does not meet the burden to support a *prima facie* case of obviousness and thus, cannot be maintained.

Specifically, the Action states that the JP06016568 abstract teaches a process for preparing an ACE-I peptide containing hydrolysate, "using the steps of contacting flour with an organic solvent (acetic acid) (which the previous primary reference Wu et al. did not), adding HCl to the solution (plausibly separating to some degree the flour from the solvent) and treating the flour with proteolytic enzyme pepsin to produce ACE-I tripeptide containing hydrolysates." Action, pages 3-4. Applicants respectfully disagree with this interpretation of JP06016568.

JP06016568 teaches treating 6.7% wheat gluten containing 70% moisture with 2N acetic acid with the pH of the acetic acid-wheat gluten solution being adjusted to 3.5 with hydrochloric acid (HCl). One of ordinary skill in the art would readily recognize that wheat gluten is not an equivalent to substantially oily free seed meal or flour; certainly no product with 70% moisture would be recognized as being equivalent to flour. Further, contrary to the assertion in the Action that adding HCl would "plausibly" result in separation of the flour from the solvent, no separation is taught or suggested in JP06016568. The HCl is clearly stated to be added simply to adjust the pH of the wheat gluten-acetic acid mix to a pH of 3.5. Further, the Action provides no basis upon which the addition of HCl to an acetic acid-flour mixture would "plausibly" result in the suggested separation.

The argument the Office Action puts forth that adding HCl would "plausibly" result in separation of the flour from the solvent appears to be based on inherency (Action, pages 3 and page 4). However, even if one assumes that an inherency argument is proper in an obviousness rejection, "plausibly" is a legally insufficient basis upon which to make such an argument as one cannot base inherency on possibilities or probabilities.

Specifically, "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" M.P.E.P. § 2112 (citations omitted). Therefore, in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *Id.* Clearly, in this case, no evidence has been presented and no evidence can be found that would show that simply adding HCl to a wheat gluten-acetic acid solution would result in separation of the wheat gluten from the acetic acid or acetic acid/HCl solution.

The Action then cites to Wu et al. for disclosing contacting a defatted soy meal with Alcalase to yield ACE inhibitory peptides. However, as the Action concedes, Wu et al. does not teach the sequential steps of the present invention of "adding a solvent and removing the flour, prior to adding the proteolytic enzyme." Action page 4-5. Accordingly, and as admitted in the Action, neither the primary reference, JP06016568, nor the secondary reference, Wu et al., teach or suggest the steps of contacting a substantially oil-free seed meal or a flour with an organic solvent and then separating the meal or flour from the solvent; prior to treating the separated meal or flour with at least one proteolytic enzyme to produce an ACE inhibitory peptide-containing hydrolysate.

The Action further fails to show how Garrison et al. remedies the deficiencies of JP06016568 and Wu et al. The Action alleges that Garrison et al teaches "defatting of oleaginous seeds rich in lipids with extraction using water alcohol systems at temperatures ranges from room temperature to the boiling point of the solvent to provide high quality protein" (Action, page 5, citing to the entire Garrison et al. document for this quotation).

As an initial point, this quote cannot be found anywhere in Garrison et al. but rather it appears to be an amalgamation of several recitations of Garrison et al. taken entirely out of context. In fact, this is a quote from the Office Action dated January 10, 2007 and they are the Examiner's words not those of Garrison et al. The fact that these disclosures were taken out of context and not representative of the teachings of Garrison et al. was discussed in the previous response; however, none of applicants arguments on this matter were addressed by the Examiner in the present Office Action.

At most Garrison et al. teaches that "[i]n most conventional seed defatting processes, the seeds, typically the oleaginous seeds, are first roll milled or comminuted to form thin flakes or meal. The flakes or meal are then either pressed to remove the oil and lipid materials or extracted with a solvent such as hexane." (Col 6, lines 24-31; emphasis added). Garrison et al. further states that a final optional step in the preparation of the oil-free protein granules of their invention can be desugaring by contact with a polar water-alcohol organic solvent (column 8, lines 46-55; emphasis added). Thus, Garrison et al. does not teach defatting using water/alcohol systems as alleged in the Action on page 5. Further, water/alcohol would not be considered for use in defatting by one of skill in the art because water/alcohol is a polar solvent system while fats are non-polar and are removed by polar solvents. Thus, one of ordinary skill in the art would choose a non-polar solvent and not water/alcohol to carry out any defatting process.

Other than stating that Garrison teaches defatting and production of high quality protein and that it provides "optimizations", which are not described (Action, page 5), the Action provides no rationale for how Garrison is to be combined with JP06016568 and Wu et al. to achieve the present invention. The methods of the present invention do not recite a defatting step nor do they recite the use of a "high quality protein" as a starting material but instead the starting material of the present invention is stated to be substantially oil free seed meal or flour. Garrison et al. does not teach or suggest contacting a substantially oil-free seed meal or a flour with an organic solvent and then separating the meal or flour from the solvent prior to treatment of the separated meal or flour of step (b) with at least one proteolytic enzyme.

Accordingly, JP06016568, Wu et al., and/or Garrison et al., alone or in any combination, fail to provide a motivation or reasonable expectation of success that would lead one of ordinary skill in the art, at the time this invention was made, to carry out the methods of the claimed invention.

Further, Eto et al. fails to remedy the deficiencies of JP06016568, Wu et al., and/or Garrison et al. The Action states that Eto et al. is cited for its teaching that it is known in the art to obtain a hydrolysate containing the ACE inhibitory peptide Phe-Leu from whey protein treated with an alkaline protease. Action, page 5. As was pointed out in the previous two responses (dated July 10, 2007 and February 25, 2008), the presently claimed invention no longer recites the peptide Phe-Leu (see claim 20). If there is another basis for including this reference in the rejection, it has not been stated in any Office Action, including the present Office Action. Accordingly, applicants one again submit that Eto et al. is not relevant to this rejection, and thus fails to remedy the deficiencies of JP06016568, Wu et al. and/or Garrison et al.

Furthermore, the Action fails to set forth how one of skill in the art would combine the various methods of JP06016568, Wu et al. and Garrison et al. in order to achieve the present invention. The Action simply pronounces that it would be obvious to arrive at the sequential steps of the present invention based on the teachings of JP06016568 and Wu et al "as well as the optimizations provided for in Garrison et al. and Eto et al." Action, page 5. The Action fails to point out specifically how these references teach or suggest the sequential steps of claim 1 of the present invention. Thus, these are simply conclusory statements and as stated in *KSR*, rejections based on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness (550 U.S. \_\_\_, 82 USPQ2d 1385, 1396 (2007); see also Examination Guidelines for Determining Obviousness Under 35 U.S.C 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.* Federal Register Vol. 72, No. 195, 57526-57535, 57528).

In this case, the Action provides only a conclusory statement regarding the presence of the sequential steps of contacting a substantially oil-free seed meal or a flour with an organic solvent (step (a)) and separating the meal or flour of step (a) from the solvent prior to treating the flour with a proteolytic enzyme and provides no evidence of such a teaching or suggestion in either JP06016568 or the secondary reference. With no evidence or reasoning provided to support the legal conclusion of obviousness this rejection cannot be maintained.

Thus, in view of the foregoing, applicants respectfully submit that JP06016568, Wu et al., Garrison et al., and Eto et al., alone or in combination, fail to teach or suggest the presently claimed invention, and thus, request the withdrawal of this rejection.

**B.** Claims 22-30 are rejected under 35 U.S.C §103(a) as allegedly unpatentable over JP06016568 (Chiba Seifun KK; filed October 4, 1992) in view of Wu et al. (*J. Agric. Food Chem.* 49: 501-506 (2001)), Garrison et al. (U.S. Patent Application No. 4,175,075), Eto et al. (*J. Jpn. Soc. Nutr. Food Sci.* 51:355-359 (1998)), and in further view of Tzen et al. (*Plant Physiol.* 101:267-276 (1993)).

Claims 22-30 are canceled herein without prejudice or disclaimer, thereby mooted this rejection. Accordingly, applicants respectfully submit that this rejection has been overcome and request its withdrawal.

### **III. New Claim 45.**

New claim 45 is added herein. Support for this claim can be found in the language of the original claims and throughout the specification, for example, at least in claim 1 and claim 11. Thus, no new matter is believed to be added this new claim. Further, this claim is believed to be free of the pending rejections for the same reasons set forth above explaining why claims 1-21 are free of the pending rejections and its entry and allowance are respectfully requested.

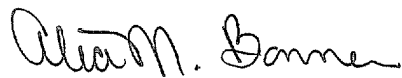
The points and concerns raised in the Action having been addressed in full herein, it is respectfully submitted that this application is in condition for allowance, which action is

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respectfully requested. Should there be any remaining concerns, the Examiner is encouraged to contact the undersigned attorney by telephone to expedite the prosecution of this application.

The Commissioner is authorized to charge Deposit Account No. 50-0220 in the amount of **\$1,110.00** as fee for a 3-month extension of time. This amount is believed correct. However, the Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-0220.

Respectfully submitted,

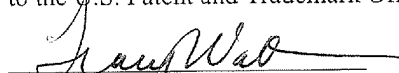


Alice M. Bonnen  
Registration No.: 57,154

**Customer Number 20792**  
Myers Bigel Sibley & Sajovec, P.A.  
P.O. Box 37428  
Raleigh, North Carolina 27627  
Telephone: (919) 854-1400  
Facsimile: (919) 854-1401

**CERTIFICATION OF ELECTRONIC TRANSMISSION**

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) to the U.S. Patent and Trademark Office on October 3, 2008.

  
Tracy Wallace